DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-027273
Date Inspected: 02-Mar-2012

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1730
Location: Job Site

CWI Name: Bernie Docena and Fred Von Hoff

CWI Present:	☑ Yes	☐ No					
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: SAS Tower

Summary of Items Observed:

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower Base 13 meters diaphragm, weld joint number W120, QA randomly observed ABF certified welder James Zhen ID #6001 and Dan Ieraci ID #3232 continuing to perform 1G (flat position) Submerged Arc Welding (SAW) on the Partial Joint Penetration (PJP) T- joint between the 45mm thick inner East diaphragm and 70mm thick Tower North Shaft skin plate 'A'. The welders were utilizing F7A6-EM12K-H8, 3.2mm electrode with corresponding Esab OK Flux 10.62 flux and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-4062-1. The joint being welded has a 45 degree bevel groove T- joint with an average root opening of 2.0mm and C-channel installed underneath that will serve as the backing bar. The plates were preheated to more than 325 °F using Miller Proheat 35 Induction Heating System with one heater blanket located on top of each plate prior welding and moving it to the side and lifting the other during welding. ABF/QC Fred Von Hoff was noted monitoring the welding parameters of the welder with measured working current of 550 amperes, 32.5 volts with travel speed of 375 mm per minute and calculated heat input of 2.8 Kjoules/mm. QA noted the welding parameters, the workmanship and appearance of the completed fill satisfactory. At the end of the shift, SAW cover pass welding was still continuing and the welders have held the preheat of more than 325 degrees Fahrenheit after welding as required.

At Tower Base 9 meter external diaphragms, the following welding activities were observed;

1. Center external diaphragm drop in plate WD1-A49 weld joint #073(5 and 6) /#074 (5 and 6), ABF welder Wai Kitlai was observed perform root pass welding on the PJP T-joint between the 45mm drop in plate and shear plate and splice butt joint to diaphragm plate. The welder was noted welding at 1G (flat position) utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16” diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. The plates were preheated and maintained to required 225°F temperature using Miller Proheat 35 Induction Heating System. After the welding completion of the root pass, ABF QC Bernie Docena was observed performing MT on the root welded T-joints and butt joint. No relevant indications were observed. This QA also performed random MT on the same welded root pass with noted same result. The welder resumed FCAW-G welding fill pass to cover pass until the end of the shift where the welder has completed the four weld joints #073(5 and 6) #074 (5 and 6). The welder performed the post weld heat treatment (PWHT) using the same preheat temperature and heating machine and held it for three hours as required.

2. Inner East external diaphragm drop in plate WD1-A59 weld joint/#071 (3 and 4) and 072 (2), ABF welder Jin Pei Wang was observed perform root pass welding on the PJP T-joint between the 45mm drop in plate and shear plate and splice butt joint to diaphragm plate. The welder was noted welding at 1G (flat position) utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16” diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. The plates were preheated and maintained to required 225°F/325°F temperature using Miller Proheat 35 Induction Heating System. After the welding completion of the root pass, ABF QC Bernie Docena was observed performing MT on the root welded T-joints and butt joint. No relevant indications were observed on PJP T-joints 071(4) and 072(2) but continuous linear indication was noted at PJP T-joint 071(3). This QA also performed random MT on the same welded root pass with noted same result. According to ABF QC Bernie Docena, ABF will generate weld repair report (WRR) then submit Request for Welding Repair (RWR) prior to fix the root linear indication. The welder resumed FCAW-G welding fill pass to cover pass on T-joints #071(4) and #072(2) until the end of the shift where the welder has completed the two weld joints. The welder performed the post weld heat treatment (PWHT) using the same preheat temperature and heating machine and held it for three hours as required.

At OBG 5W-PP29.5-W2 deck access hole inside, QA randomly observed ABF/JV qualified welder Jason Collins perform fill pass back welding on the Complete Joint Penetration (CJP) butt joint. The welder was observed manually welding in the 4G (overhead) position utilizing a Shielded Metal Arc Welding (SMAW) with 1/8” diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1110A Revision 1. ABF Quality Control (QC) Harry Scharein was noted monitoring the welding parameters of the welder. QA randomly monitored the welding parameter with reading of 128 amperes which appears in conformance to the contract requirements. At the end of the shift, SMAW fill pass welding was still continuing and should remain tomorrow.

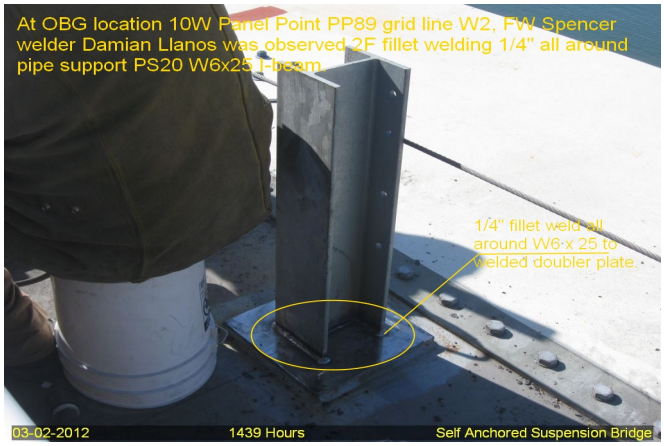
FW Spencer:

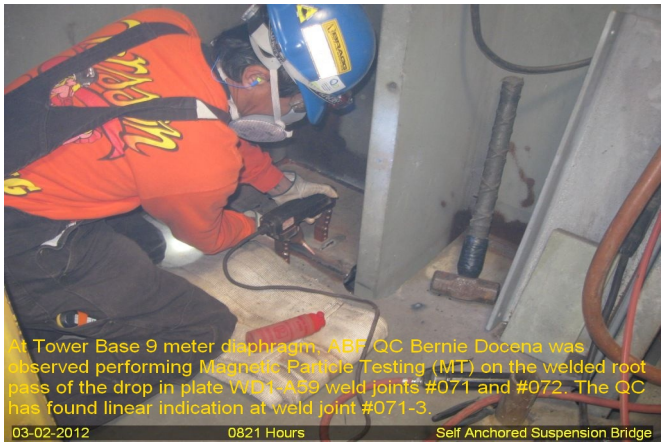
At OBG 10W location Panel Point PP87 grid line W2, this QA randomly observed FW Spencer qualified welder Damian Llanos perform Complete Joint Penetration (CJP) 6G (all position) Shielded Metal Arc Welding (SMAW) welding root pass to cover pass on the field splice butt joint of 2.5" and 4” domestic water and compressed air lines respectively. The system lines being welded are field weld joints along the grid line of W2 of the OBG. The welder was noted welding the root pass with 3/32” diameter E6010 electrode and followed by fill pass to cover

pass using 3/32” diameter E7018H4R electrode implementing Caltrans approved procedure FW Spencer WPS 1-12-1. The welder was noted preheating and removing the moisture of the joint using a portable propane gas torch prior welding. During welding, ABF QC Steve Jensen was noted monitoring the parameters of the welder.

At location 10W-PP89 OBG gridline W2, this QA also observed the same welder fillet welding pipe support identified as PS-20. The pipe support being installed is a vertical support W6 x 25 fillet welded on top of doubler plate previously welded on top of the OBG. This support is intended for the expansion joints at this panel point location. QA randomly observed Damian Llanos perform 2F horizontal position fillet welding all around the W6 x 25. The welder was noted using Shielded Metal Arc Welding (SMAW) with 1/8” diameter E7018H4R electrode. ABF QC Steve Jensen was noted monitoring the welder. The welder has welded one PS-20 support to the doubler plate of the OBG top plate and at the end of the shift the welder has also completed the welding of the splice butt joints at the following;

Line Service Line/Pipe Size Panel Point Location Joint Designation
1 Domestic Water 2 ½” 87 Northwest 45/2.5/87/NW
2 Compressed Air 4” 87 Northwest 45/4/87/NW





Summary of Conversations:
No significant conversation ocurred today.

WELDING INSPECTION REPORT

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Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Lizardo,Joselito	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer